WEST BEND PRESCRIBED FIRE PILOT AFTER ACTION REVIEW

Executive Summary

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The Smoke Center
CENTER FOR WILDFIRE SMOKE RESEARCH & PRACTICE
University of Oregon

Ecosystem Workforce Program

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About this report

The University of Oregon's Ecosystem Workforce Program (EWP) is an applied social science research program built on the interconnections of ecology, economy, and governance. EWP and the University of Oregon Center for Wildfire Smoke Research and Practice are partner programs within the Institute for Resilient Organizations, Communities and Environments. EWP Working Papers and other publications share applied research results and implications in accessible formats for natural resource managers, policymakers, and other partners.

Acknowledgements

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The University of Oregon Center for Wildfire Smoke Research and Practice (The Smoke Center) conducts research and sharing information between practitioners, researchers, and communities. The Smoke Center was created as a community-initiative project to help Oregon communities better prepare for wildfire smoke events. It is funded through the Environmental Protection Agency, as part of the Interior, Environment, and Related Agencies Appropriation portion of the FY 2022 Consolidated Appropriations Act. (EPA-ORD-OSAPE-2022-01). This publication was developed under Assistance Agreement No. EM-84054001 awarded by the U.S. Environmental Protection Agency to University of Oregon. It has not been formally reviewed by EPA. The views expressed in this document are solely those of recipient or the authors and do not necessarily reflect those of the Agency. EPA does not endorse any products or commercial services mentioned in this publication.

Report website

https://resilient.uoregon.edu/wildfire-smoke-center/preparation-response

EO/ADA institution committed to cultural diversity.

Photos by Heidi Huber-Stearns and Jess Downey, West Bend Pilot Project, May and October 2024.

Refer to our website here to find supplemental materials for the West Bend After Action Review. *Report contact: huber@uoregon.edu for additional information.*

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SUMMARY

"Our success in Oregon stems from the recognition that prescribed fire is no longer solely a natural resource conversation - it is a public health priority and a climate adaptation strategy that mitigates the catastrophic impacts of wildfire. EPA and CDC's support to expand the use of prescribed fire in the West is an expression of this reality."

– Doug Grafe, Oregon Governor's Office

The West Bend Prescribed Fire Pilot Project was an ambitious and unprecedented effort in pace and scale in the area, designed in response to wildfire and climate crises, and centering public health. Overall, the project aligned with most of the five guiding principles of the PNW Regional Joint Statement of Intent. The pilot demonstrated efficient implementation of larger prescribed burns through enhanced inter-agency collaboration, improved communication, expedited timelines, and a strong commitment to addressing wildfire risks, achieving significant acreage while advancing shared goals for future wildfire management. This report highlights shared learning opportunities in public outreach, communication, inter- and intra-organizational coordination, and cross-agency collaboration. Participants identified several key areas for improvement, including enhancing inter-agency coordination, providing year-round public health support to help communities and airsheds become smoke ready, developing more aligned public health metrics to assess the effectiveness of risk reduction efforts, and improving integration of smoke forecasting, modeling, and implementation in future strategies.

Perspectives on Reducing Health Impacts from Smoke Exposure

"There are at least six key approaches to limiting the adverse health impacts of smoke exposure among people at greater risk: 1) improving the overall health of the population to minimize the number of individuals at risk, 2) optimizing medical therapy for patients with conditions that put them at risk, 3) prioritizing intervention among those at risk, 4) educating patients and their caregivers on actions they can take to reduce exposure to smoke, 5) helping communities prepare for smoke, and 6) encouraging greater cooperation among land managers, public health, and health care systems and professionals to lower exposure and protect health."*

** Wildfire Smoke: Opportunities for Cooperation Among Health Care, Public Health, and Land Management to Protect Patient Health. (2021). Robarge G; Katz S; Cascio WE. doi: 10.18043/ncm.81.5.320*

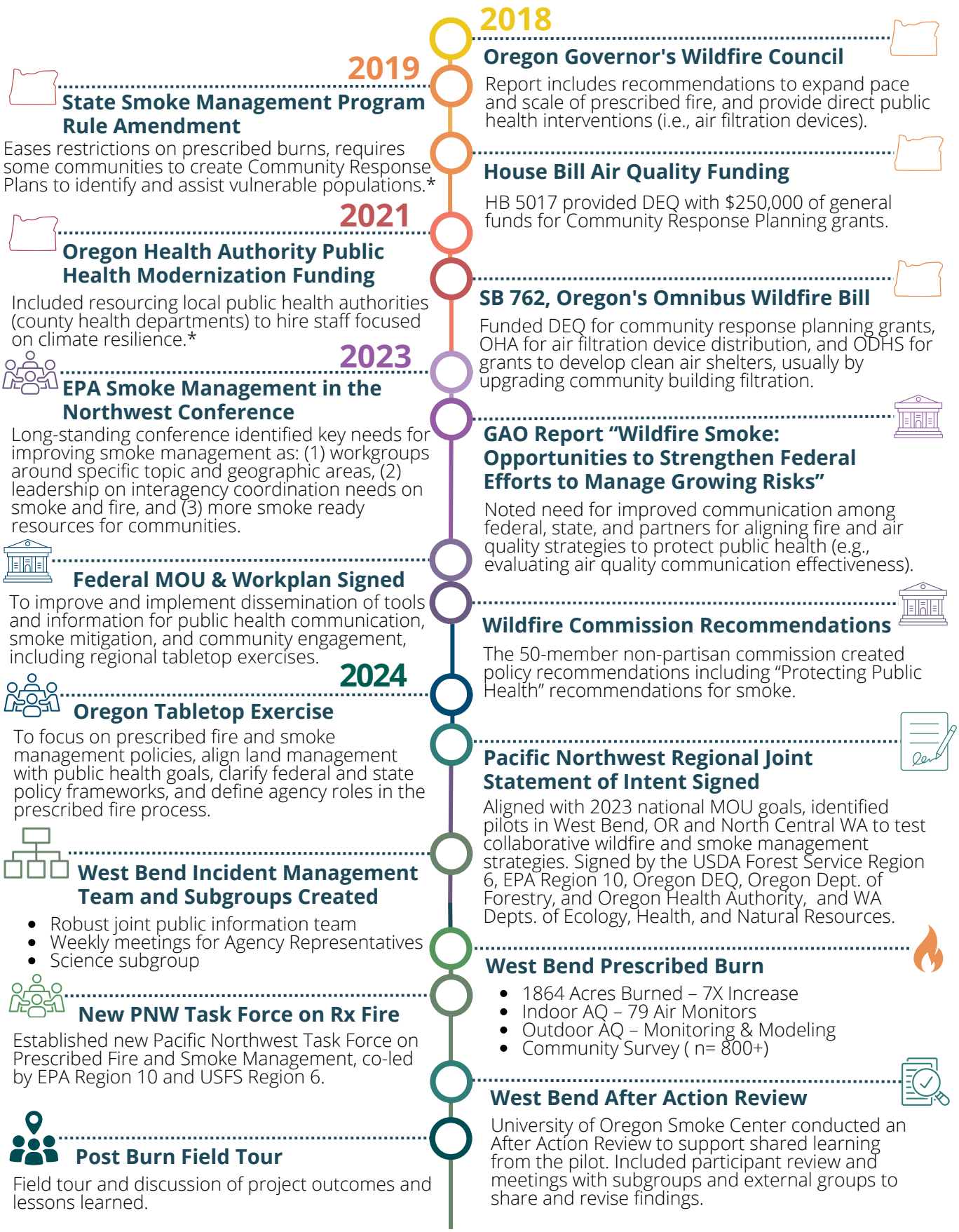
PURPOSE

Over the past year, the West Bend Prescribed Fire Pilot explored strategies to increase the use of prescribed fire for achieving land management objectives while implementing measures to minimize public health impacts. This effort brought together federal and state air, environment, public health, local government, and land management agencies to clarify their roles and responsibilities in addressing forest health and public health concerns.

The West Bend Project was part of a regional and national effort to align air quality and land management goals for wildfire risk mitigation and establish joint strategies. A 2023 Memorandum of Understanding (MOU) and FY 2024-2025 Cooperative Work Plan among the USDA Forest Service (USFS), U.S. Department of the Interior (DOI), U.S. Environmental Protection Agency (EPA), and U.S. Centers for Disease Control and Prevention (CDC) recognized wildfire as a public health crisis and was built on a 2018 MOU for collaborative wildfire management. In November 2023, state and federal agencies, Tribal Nations, and local public health leaders convened a tabletop exercise to develop strategies addressing wildfires in Oregon and Washington. They emphasized scaling prescribed fire to reduce wildfire risk and enhance ecosystem resilience, culminating in the Pacific Northwest Regional Joint Statement of Intent to Cooperate. Through a detailed and structured planning process, this led to the West Bend Prescribed Fire Pilot on the Deschutes National Forest in Central Oregon in May-June 2024. See Fig. 1 on the next page for additional details about this effort.

The University of Oregon Center for Wildfire Smoke Research and Practice (The Smoke Center) was a process reviewer and conducted an After Action Review (AAR) of the pilot. This work supported shared learning among participating agencies and advanced the Smoke Center's goal of evaluating the effectiveness of community-level preparation and response strategies during smoke events in Oregon. The AAR aligns with Objective #6 of the U.S. Forest Service's West Bend Pilot Incident Action Plan, which emphasizes documenting lessons learned, identifying barriers and solutions, refining team processes, and providing recommendations for improvement.

Figure 1. Timeline of Key Events Leading up to West Bend Pilot.

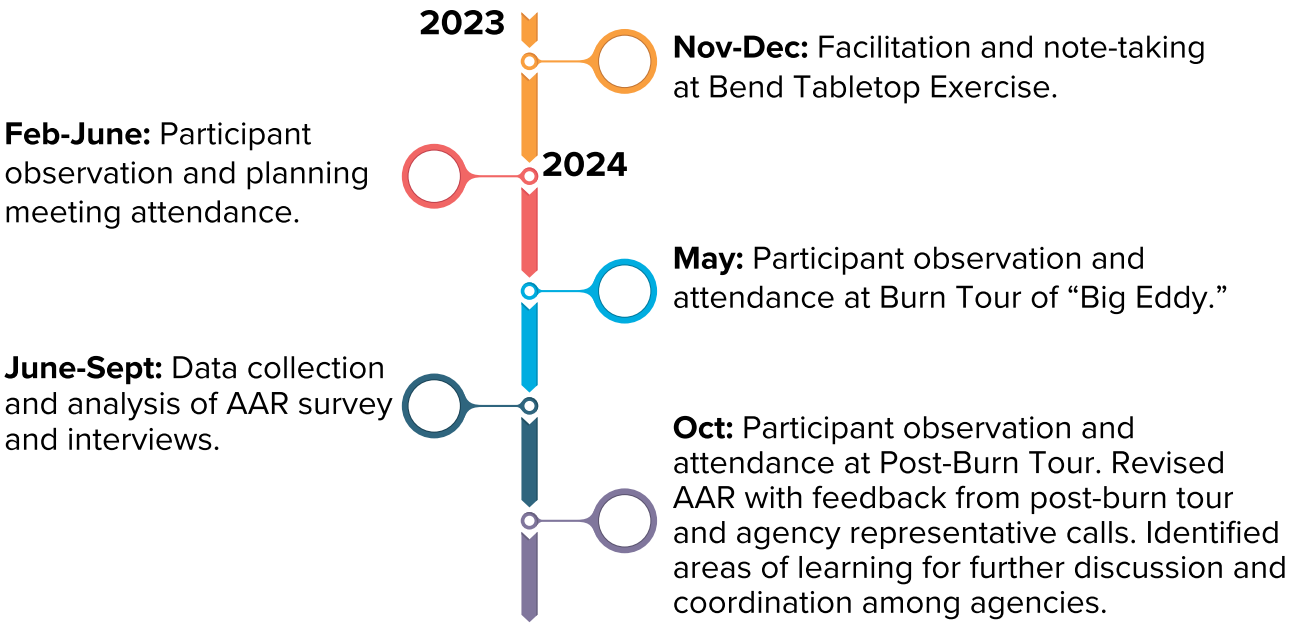


* Bend created a Community Response Plan. Deschutes County Health Services hired a Regional Climate and Health Coordinator position. See Resources list for additional information.

Approach

This AAR focuses on the experiences of individuals and organizations involved in the planning, preparation, and implementation of the West Bend Prescribed Fire Pilot. See Fig. 2 for a process diagram of the AAR. The AAR is based on participant observation and an after-action review process which included a survey (n = 35), interviews (n = 8), and multiple working sessions presenting report findings and gathering feedback from pilot project participants (involved in planning and/or implementation). These findings reflect 12 different organizations involved in the pilot.

Figure 2. Process Diagram of West Bend Pilot After Action Review



The review reflects the five guiding principles of the Pacific Northwest Regional Joint Statement of Intent:

1. Act with urgency.
2. Protect public health, safety, and property.
3. Identify and address the most limiting factors to implementing prescribed fire at scale as a management tool.
4. Test new approaches, learn from them, and adapt based on experience.
5. Be innovative and comprehensive, applying best practices.

1. We received 35 survey responses and conducted 8 interviews on Teams (i.e., 3 respondents started a survey, but requested to complete the rest of the survey via an interview), resulting in a total of 37 unique responses.

KEY SUCCESSES

Urgent action on burns

Most respondents thought the pilot demonstrated the ability to implement larger acreage prescribed burn plans more efficiently than the Forest Service has historically managed. Some attributed this to a heightened commitment to addressing wildfire risks with urgency. Agencies at local, state, and federal levels prioritized the project by adapting their workflows to meet the needs of the West Bend Pilot. This effort included quickly forming a robust multi-agency coalition involving partners from NGOs, universities, and government agencies, and expediting the project timeline from a November 2023 tabletop planning exercise to prescribed burn implementation by May 2024.

Achieving more prescribed burning

The project achieved 1,864 of the planned 1,977 acres. Land management agency participants more frequently noted the overall project as a success, but defined that success mainly around area burned and communication efforts, not quantifiable smoke impacts (some of which were still being analyzed).

Improved communication and coordination

Agencies were able to communicate, collaborate, and learn together in new ways. The Incident Management Team (IMT) structure was effective, providing leadership and organization that allowed agency decision-makers to break down barriers and coordinate more efficiently. People also noted improvements for public health support, forecasting, and inter-agency coordination for future burns.

Enhancement of public health messaging

Project participants noted successes in the reach, consistency and utility of public health communications. The emphasis on messaging was promising, although challenges still remained in inter and intra agency communication and providing sufficient resources for communities for reducing their smoke exposure.

Commitment to continued collaboration

Overall, project participants expressed a commitment to continue working together on this joint effort, and viewed the West Bend Pilot as a vehicle for advancing the shared goals and priorities outlined in the PNW Regional Joint Statement of Intent, that are drawn from the National MOU and Cooperative Work Plan for FY 2024-2025.

AREAS FOR LEARNING AND DISCUSSION

This pilot was an opportunity to test new approaches and learn from them, which included some key areas of learning, especially around agency coordination, gaps in community preparedness outside the Bend Smoke Sensitive Receptor Area (SSRA), and promising practices for future work.

1. Redefining how this work "protects public health, safety and property"

> "We don't have enough information to know if public health and safety were adequately and equitably protected... we need a full debrief on the air quality and smoke data, including ambient and indoor air data...what was expected, what occurred, how that differed, what could have been done to reduce the smoke that did occur. We also need information on who was reached with preparedness efforts, who might have been missed, what we would collectively consider doing and evaluating in the future to know how successful we were."

Respondents were unclear if the pilot project protected public health, safety, and property as intended. Most respondents said they were unable to definitively answer this and would need data about air quality conditions and impacts on the public to have an informed response. Establishing a comprehensive research plan with clearly defined metrics of success for protecting public health and safety before project implementation would facilitate more targeted results relevant to assessing public health impacts beyond just the reach of communication campaigns.

Recommendation: Establish metrics of success in advance, informed by risk communication.

Develop a comprehensive research plan with clearly defined metrics and data collection strategies before project implementation. This will generate better measurement of key outcomes, such as public health impacts and smoke exposure mitigation. Engaging risk communicators and ensuring appropriate resources and personnel are secured in advance will improve efficiency and efficacy of data collection. Specific public health metrics that focus on minimizing smoke exposure and mitigating health risks will be key to assessing project success beyond acres burned. Framing outcomes around risk reduction clarifies public health protection expectations and improves communities' responses to smoke events.

2. Accessing overlooked or unaware portions of affected communities

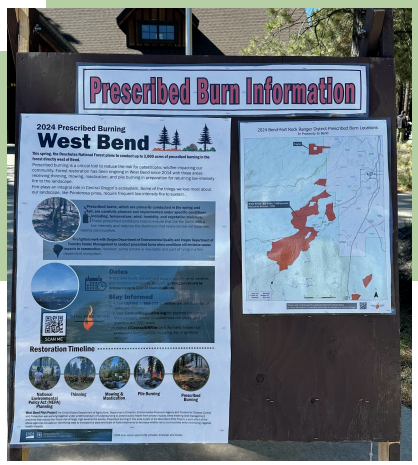
> "Future burns need to take into account all communities that are impacted and ensure the communication plans are designed to inform those communities."

There were mixed results on who was reached with communication, both overlooked communities and unaware communities. Many participants noted that Sunriver and La Pine were more affected by smoke from the pilot than West Bend, and they had far more limited outreach and communication for the pilot than Bend. Both areas have not had a community response plan for smoke, so were also less informed and prepared for the air quality effects of the pilot. However, in the post-project field tour in October, the Forest Service explained that this smoke was from a different unit burning, not the pilot. This distinction was not clear to participants, which underscores the need for improved communication and coordination. Smoke readiness must extend beyond single events to encompass broader regional strategies, and not stop at a town line. Similarly, as Forest Service individuals noted, smoke management should also consider cumulative, regional smoke impacts.

In addition, some agencies received complaints from community members across Deschutes County who were unaware of the burns, despite local partners' strong efforts on outreach. Some agencies noted that residents had unsubscribed from prescribed and wildfire notifications due to messaging fatigue and therefore were uninformed for the pilot smoke. Furthermore, in other places around Oregon, emergency managers or others in decision-making roles have tended to not consider smoke or poor air quality to be an emergency that requires the use of local alert systems. This is an indication that established alert systems have not always been activated, which, although it has helped to avoid messaging fatigue for participants, it has also missed the opportunity to alert people to prepare themselves for unhealthy air quality conditions.

Recommendation: Continually monitor and adapt, and assess for missing entities

Participants noted the need for more communications and outreach with schools, families, in outdoor venues (concerts, farmers markets), as well as other local and state level entities that were missing from the pilot's planning efforts and should be included in the future. For example, respondents noted missing IMT roles included planners, building code regulators, private sector, more ODHS areas, Tribes, Land Conservation and Development, and the National Weather Service.



Recommendation: Identify additional local partners who can engage in public health messaging beyond the usual alert systems, and adapt templates to use culturally specific messaging.

Local organizations and others working in air quality and health have coordinated with schools and health clinics that have established texting platforms and are more personally connected and familiar with different at-risk populations, including farmworkers, people with asthma or COPD, pregnant persons, Spanish speakers, etc. These messaging techniques are more likely to reach intended populations because of these stronger relationship ties, and also, schools and health clinics are more likely to be aware of community gathering spaces, networks, and communication outlets that are most effective.

3. Pivoting to year-round, whole community and airshed preparedness

> "On one hand there was great urgency...and perhaps too much with some members of the team sought to treat this at the same level of urgency as an emergency situation. This created additional burden on already time strapped partners."

Several participants emphasized the need to pivot toward year-round, whole community approaches across the whole airshed instead of reactive, almost emergency-type responses. Participants noted that the effort and resources expended for the pilot might have been disproportionate to the impacts of the planned prescribed fire. Many explained that this level of effort might be best directed toward developing year-round education, resources, and preparedness strategies that equip communities to handle ongoing smoke exposure, whether from wildfires or prescribed burns. Shifting the mindset from episodic responses to sustained preparedness would allow communities to better adapt to living with smoke and take action to protect their health in real time. A "whole-community approach" would involve more integrated, ongoing support (information and resources) and avoid the challenges of intermittent messaging or message fatigue. Additionally, prescribed burns could be leveraged to initiate conversations about air filtration, indoor air quality, and community capacity building.

Recommendation: Provide continuous public health support and adequate resources.

Public health agencies need sustained resources to manage the impacts of prescribed burns and support individuals in reducing their exposure and risk. Year-round investment in community-embedded public health, and fire and smoke preparedness, is necessary to ensure local public health entities can engage in community preparedness and pivot to more intensive efforts during prescribed burn seasons. This will help avoid reactive, high-intensity responses that are better reserved for acute major emergencies in public health, and not seasonally anticipated smoke impacts. This will also better support an already under-resourced local public health system whose few staff cannot sustainably support pilot projects like these without pivoting away from other key duties. Local public health organizations are also crucial and informed local-level advocates for engaging a range of segments of the population (e.g., sharing information and resources at the retirement center's well-attended Tuesday night steak dinner, or knowing how to best access families and childcare providers).

> "...the level of staff time required for this project was disproportionate to the public health risk of intermittent prescribed fire smoke exposure... [but this could be a] way to continue elevating readiness for wildfire smoke, which presents a significantly larger risk to health."

Recommendation: Adopt a whole-community or airshed approach to smoke preparedness.

> "I think this is an area for more investment into understanding how to measure and monitor public health; and also, ensure that 'all potentially affected people' are included. There was some concern expressed about the broader regional population, i.e., La Pine, not being as informed as the Bend population. Overall, I think that we met the goal in a 'satisfactory' way, based on what we knew when we started, but we learned that we need to do more to fully meet the intent, and that knowledge needs to inform future actions."

Broaden smoke response plans to cover entire airsheds, not just specific towns, and prioritize vulnerable populations. Programs like Oregon Health Authority's air filtration device distribution show the benefits of targeted assistance to those most affected by smoke, such as the elderly, children, and people with disabilities. This broader approach requires additional state funding and must be inclusive of equity considerations, involving local actors early for place-based decisions. Prior to burning,

identify the plans, resources and information for all potentially affected communities in the airshed, not just those with organized plans or established outreach channels. Modernizing tools, such as Smoke Sensitive Receptor Areas (SSRAs), to reflect contemporary smoke-related challenges can create a more comprehensive response. This approach aligns well with the EPA's focus on Smoke Ready Communities. Participants also already recognize that the Community Response Plans for smoke, that are required by Oregon DEQ, in collaboration with ODF and OHA, for SSRA communities who wish to use prescribed fire, support wildfire and other smoke response contexts, and should be expanded beyond their current boundaries.

4. Systematically addressing organizational challenges in planning and implementation by advancing coordination, and clarifying roles.

> "...there were missed opportunities for operations, shared learning and creativity, shared problem solving – There was limited involvement of outside agencies in the operations planning and discussion of different ways the burns could be conducted, tools and approaches used. More acreage was done, but were different tools and approaches used? Were there other approaches that could have reduced smoke? What is replicable about the approaches used here for other areas of the forest or other forests?"

The pilot highlighted areas for continued advancement in the coordination and clarity of roles between agencies such as ODF, DEQ, OHA, and local public health agencies. The new or blurred coordination of agency procedures might have contributed to confusion and miscommunication, particularly during smoke events when public health advisories were delayed. This shows the need for establishing stronger linkages between modeling and forecasting, public health, and burn operations.

Organizations reported key challenges in implementing and planning the pilot:

1. workload, staffing capacity, and trying to meet the project urgency;
2. communications within and between agencies;
3. getting the Incident Management Team (IMT) structure set-up;
4. struggling to navigate competing agency priorities;
5. implementation of prescribed burning on the ground and resources needed for intrusion reporting; and
6. defining the roles and appropriate level of engagement of different public health sectors (e.g., emergency preparedness in wildfire, environmental health in prescribed fire).

Recommendation: Federal and state partners could compensate local partners for participation when it increases workloads.

Offering compensation and/or working with local partners to identify their capacity and resource needs could better support these types of projects. For example, identifying other staffing resources to bring in for local public health, similar to how there is training for Air Resource Advisors (that is not specific to one agency) that are brought in to support local efforts during wildfire.

Recommendation: Identify pathways to integrate with and elevate public health networks.

"All people in Oregon deserve to live in a state where they can have the best chance at health. The COVID-19 pandemic highlighted major gaps in our public health system which showed us that new, complex health threats do not impact all Oregonians equally. It is unjust that rural communities, communities of color, tribal communities, disability communities, communities with lower income and other underserved communities experience worse effects of health problems. One key solution to this problem is to create an equity-centered public health system through public health modernization."

– Oregon Health Authority, "An Equity-Centered Public Health System for a Modern, Changing World"

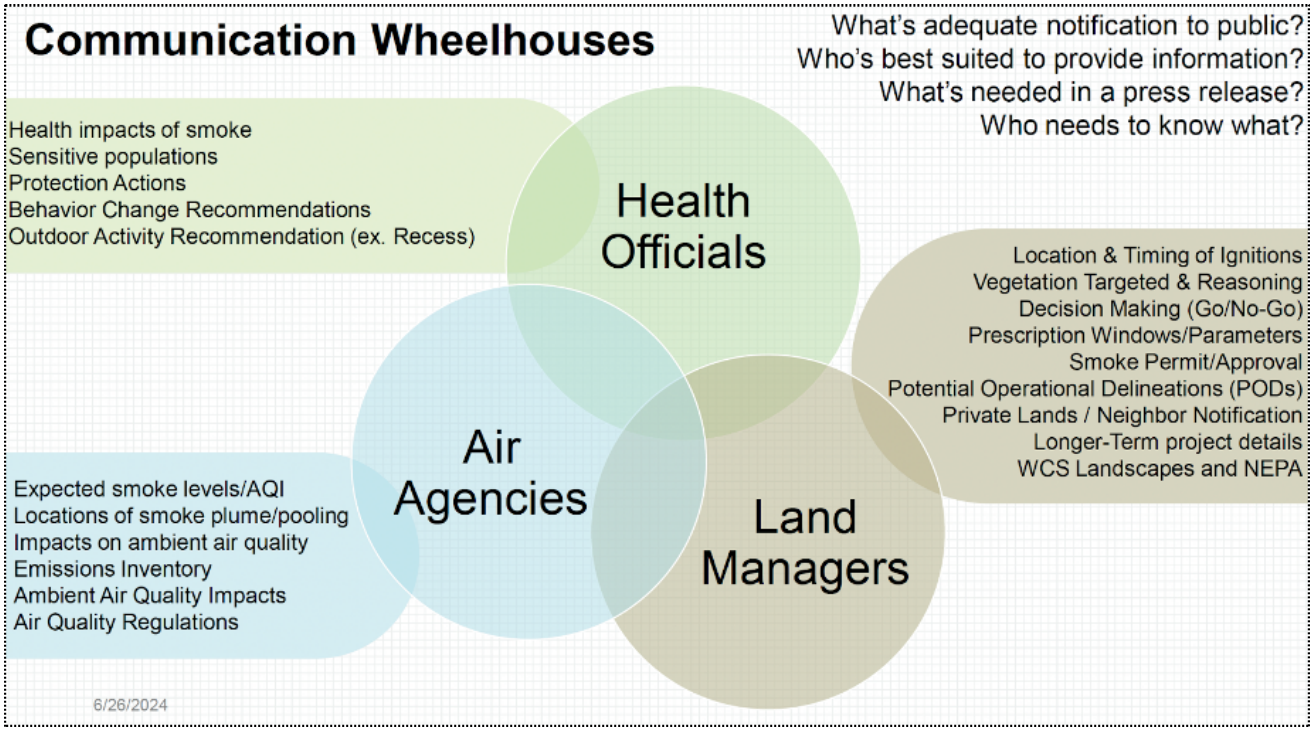
Public health participants in the pilot highlighted how they leveraged networks established during the COVID-19 pandemic. Building on these experiences during Covid, the Oregon Health Authority (OHA) began recognizing the integral roles of community-based organizations in the public health system and provided them with resources to engage in Environmental Health and climate change-related work. OHA is also undergoing "public health modernization" to address health inequities. This effort includes an agency-wide assessment of needs in foundational program areas, such as Environmental Health, which now receives priority funding for climate change-related initiatives. At the county level, local public health authorities are required to develop climate and health resilience plans. These plans identify risks, vulnerable populations, and strategies to mitigate those risks. Strengthening this integrated planning across communities statewide can support future initiatives like the West Bend Pilot while protecting equity-centered efforts from inconsistent state funding and staffing challenges.

Recommendation: Apply learning from smoke intrusion communication during the pilot project to improve specific processes for future projects like these (e.g., Fig. 3 "Communication Wheelhouses").

Participants noted several areas of coordination and communication to refine, including through shared objects like the "Communication Wheelhouses" (Fig. 3):

- Increase integration and inter-agency coordination between public health, air agencies, and land managers, recognizing the shared responsibility.
- Vertical and horizontal coordination between agencies in communication to the public. For example, inclusion of smoke and health messaging in public information notices for burns, having local points of contact or references to existing online resources (e.g., Central Oregon Fire website), or creating a shared town hall event with both land management and local public health.
- Greater differentiation of responsibilities within public health (e.g., environmental health and emergency preparedness programs) and local and state agency levels.
- Clarification of roles in smoke modeling and forecasting, smoke management plan management, and reporting, at state-specific scales.
- Inclusion of other community-based organizations, who play a role in outreach and messaging (e.g., Deschutes Collaborative Forest Project, Oregon Living with Fire).

Figure 3. "Communication Wheelhouses" developed by Dr. Amber Ortega, U.S. Forest Service Regional Smoke Coordinator and Air Resource Advisor, Rocky Mountain Region.



5. Creating pathways to improve the integration and use of smoke modeling and forecasts by public information teams.

During the West Bend pilot, the smoke forecasting group developed a template for sharing forecasting information with public information teams. This template was revised based on feedback from risk communicators and agencies, e.g., local public health, Oregon Health Authority, Oregon Department of Environmental Quality, and the local USFS Public Information Officer. The AAR found miscommunication and inefficiencies in distributing information during the pilot. To address this, coordinated messaging across agencies is essential, focusing on public health and prescribed burning goals, actionable advice, and clear communication templates.

The Smoke Forecasting and Monitoring group will be issuing a draft report in January 2025 which summarizes the observed smoke impacts from each of the four prescribed burns in the pilot. The observed impacts will be compared with regulatory thresholds for context. Observed differences of smoke impacts between burns will be explained by examining the differences in PM2.5 emission rates between sites, and meteorology. Smoke forecasts will also be evaluated for accuracy. Lessons learned and recommendations for improved forecasting methodologies will be provided.

Recommendation: Develop a work group to focus on smoke modeling and forecasting communication, coordination and efficiencies.

Developing a work group for modeling and forecasting lessons learned specifically could identify areas for improved efficiency and communication for future related projects. This could also be an opportunity for cross-agency learning and co-development of processes. This work group could also focus on identifying inter- and intra-agency efficiencies, and opportunities for coordination and information sharing between smoke modeling and forecasts with risk communicators and public information teams.

FUTURE WORK

Pilot participants acted with urgency but raised concerns about replicating this project, particularly in places without the same level of pre-existing resources and capacity. Many participants noted that the level of resources, staff involvement, and inter-agency coordination required for this pilot was not scalable for future prescribed fire projects. This highlights the need for more efficient, scalable strategies. Many participants noted their role in this project was not sustainable, given their current workload, or if it was, it was because their other duties were superseded by this priority.

Considerations for West Bend

"...all participating agencies moved rapidly to help create the right conditions to maximize success in the West Bend project...the robust communications team that grew to support the effort best exemplifies the urgency...the Governor's Office ma[de] this a clear priority for state agencies..[but] Bend was an easy place to experience 'success' because so much work had already been done to lay the foundation; and [there was] accommodating weather that maximized the opportunity to burn with minimal smoke impacts to the Bend community."

West Bend was particularly well resourced and equipped for such a pilot. This pilot project used pre-existing NEPA-ready planning, was a state-level priority, and was implemented in an area that had extensive engagement with the public, given their work on a *Prescribed Fire, Smoke, and Public Health: Community Response Plan* (2019) for the Bend SSRA, and pre-existing prescribed burning education and outreach from the Deschutes Collaborative Forest Project, Oregon Living with Fire, and others in the Bend community. Participants noted that this pre-planned work and pre-existing community engagement was partly responsible for how quickly the pilot project was able to move. The unique role of Deschutes County Health Services' Regional Climate and Health Coordinator (which covers Crook, Deschutes, and Jefferson Counties) was noted as a key factor in the project success, and it was a position that spent 6-8 months full-time working on this project, a workload that would likely be unsustainable in other areas.

"[The Forest Service was] able to identify opportunities to increase acreage in this area by nearly 7 times the average. People were able to come to the table to find a common operating picture."

This regional and climate health coordinator position was established through the county's self-defined prioritization of Public Health Modernization funds from Oregon Health Authority that were provided to the county prior to this pilot. Counties will likely use this funding in different ways, based on their own community-defined priorities. This highlights a need to identify funding for this type of position in the future in other places not only in Oregon, but also in other states. From a Forest Service perspective, staffing for this pilot did not change much from what they would normally have needed for a prescribed burn effort of this size or location. Participants identified the need for more investment in public health, modeling and forecasting efforts, to continue doing projects like this.

At the time of this report, project participants were not sure how this work would continue, and if or how it might change their respective roles in the future. Some noted they had these communication pathways established prior to the project, and others said this experience expanded the depth and breadth of relationships and connections to subject matter experts. The main areas where people felt their work would change in the future was between USFS and EPA at varying levels (national/regional/local) and continuing to build on the established relationship between local public health and USFS Public Information Officer (PIO) for shared messaging, coordination, and outreach.

Overall, people expressed that the West Bend Pilot was a step forward for the shared goals and priorities of the agency work plan and commitments to these issues. Even with challenges noted above, and taking people and agencies out of their typical roles and adding to their workload, people were committed to this joint effort across the region.

Promising practices and applicability in other places

The promising practices and related learning experienced in the West Bend Pilot project can be transferred both to future work in Central Oregon, and to other communities and landscapes. For example, Community Response Plans for smoke, such as those developed for Bend could be used as a model in other areas looking to implement similar work. Specific to Oregon, development of Community Response Plans for smoke was temporarily funded by the Oregon legislature through SB 762, which directed Oregon Department of Environmental Quality to develop a program for developing these plans in Smoke Sensitive Receptor Areas (SSRAs). This does not

account for adjacent communities with smaller population sizes, nor does it reflect the reality that smoke crosses over boundary lines.

In contrast to this pilot, which occurred in an area that was already well-prepared, informed, and familiar with recurrent wildfire smoke seasons, conducting a pilot in an area that has not experienced wildfires, or was less prepared for smoke, could help demonstrate what type of resources and capacities need to be set up. It could also help to highlight what organizations and networks already exist locally that are addressing other aspects of community preparedness. For example, identifying culturally specific community-based organizations, and roles that work with those at greater risk from environmental health effects, e.g., outdoor workers, unhoused people, people with disabilities, older adults and youth. Although these organizations may lack wildfire and prescribed fire smoke related knowledge, they are familiar with a range of harder to access population segments, and well-versed in effective and culturally appropriate messaging for those communities they serve.

> "Let's systematize Community Response Plans, tabletop exercises, [and] the partnerships. We have to get through these earlier steps to show that what we have is durable, re-producible to make these regulatory changes....With our continued conversations [across local, regional and executive levels], we can keep making incremental changes on how we are working together."

The recommendations in this report highlight key areas of learning for potential workgroups, future meetings, and discussions aimed at advancing and replicating similar projects elsewhere. Documenting the planning and implementation processes of pilot projects like West Bend can help identify opportunities for regulatory and operational improvements. Additionally, defining metrics of success in advance can provide clear guidance and streamline future related projects.

Looking ahead, components of integrated planning (see Fig. 4) may serve as valuable tools for guiding the implementation of projects like these in collaboration with other communities of place and practice.

Figure 4. Hallmarks of Integrated Planning. Adapted from the Society for College and University Planning.

Resources

- **Supplemental Materials for West Bend After Action Review:** https://resilient.uoregon.edu/wildfire-smoke-center/preparation-response or contact jdowney7@uoregon.edu for additional information.

- **Wildland Fire Mitigation & Management Commission Report** recognized the need to substantially increase landscape-scale use of prescribed fire and cultural burning to mitigate wildfire impacts on both landscapes and communities. The report has several recommendations that are supported by and complementary to the considerations and needs identified through this process.

- **Government Accountability Office (GAO) Wildfire Smoke–Opportunities to Strengthen Federal Efforts to Manage Growing Risks**. In a March 2023 report to Congress, "Wildfire Smoke–Opportunities to Strengthen Federal Efforts to Manage Growing Risks", the Government Accountability Office (GAO) called upon the Administrator of the U.S. Environmental Protection Agency (U.S. EPA) and the Secretaries of the U.S. Departments of Agriculture (USDA) and the Interior (U.S. DOI) to better align air quality and land management goals for wildfire risk mitigation and establish joint strategies for achieving those goals.

- **National Memorandum of Understanding (MOU) and a FY 2024-2025 Cooperative Work Plan** between the USDA Forest Service, U.S. DOI, U.S. EPA, and U.S. CDC identified the wildfire crisis as a public health crisis and outlined shared strategies to address it. This 2023 MOU was informed by the 2018 MOU between U.S. EPA, U.S. DOI, and USDA to develop a collaborative framework for addressing wildfires and wildfire management.

- **U.S. Forest Service PNW Region's Joint Collaboration on Prescribed Fire & Smoke Management** (April 2024 press release).

- **PNW Regional Joint Statement of Intent** to Cooperate on Prescribed Fire & Smoke Management.

- **Bend's Prescribed Fire, Smoke, & Public Health Community Response Plan** (2019).

- **Deschutes National Forest Prescribed Burn Communication Plan** (2024).

- **Robarge G, Katz S, Cascio WE. Wildfire Smoke: Opportunities for Cooperation Among Health Care, Public Health, and Land Management to Protect Patient Health.** NC Med J. 2020 Sep-Oct;81(5):320-323. doi: 10.18043/ncm.81.5.320

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